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# The IMO– Standard Marine Communication Phrases and AIS Language Requirements

To start with a few general remarks regarding the VTS section of the IMO – Standard Marine Communication Phrases (SMCP, IMO 2002): This section (A1/6) was developed in close cooperation with the then IALA Technical Committee responsible for VTS matters. The standardised phrases were derived, formed and standardised from a corpus of transcribed recordings of real-life VTS communications obtained in different VTS Centres and by goal-oriented observations in the Centres and on shipboard as well.

Neither IMO nor the principle author of the SMCP ever claimed that these phrases are the one and only way to describe situations, events, processes, etc., i.e. to communicate in English in a safety/security related maritime context. It was understandably one of the indispensable restrictions when developing that standardised safety language, that only **one** phrase for a certain situation, process, etc., could be singled out from a multitude of further options, which are, of course, not inappropriate because another one was given priority for the SMCP. This selection was done in umpteen tormenting Working Group sessions at the IMO headquarters, in Correspondence Groups also with IALA and selected VTS Centres, last but not least, at different IMECs in the late nineties of the last century. Each individual term and phrase was checked and re-checked by native English speaking Master Mariners and VTS personnel before it was accepted. More couldn't realistically be done to ensure a real-life background of the SMCP so that the blanket assertion "In real life nobody speaks like that", is not justifiable – to state "In real life mariners do not only speak like that" would be fairer. By the way, this item was discussed in detail within the Maritime English community and interested parties and finally assessed twenty year ago already.

Every now and then voices from the industry are questioning whether the SMCP allow for new communication requirements arising from innovative electronic aids to navigation especially regarding the VTS exchange of information - some voices claim they don't do so as just heard at the IALA Workshop on Common Phraseology and Procedures for VTS Communications (Denpasar, Bali – Indonesia, 20 – 24 February 2017). In this context the application of AIS and its (possibly) new communication requirements gets frequently mentioned.

In order to support a realistic evaluation of this issue a project was launched with the objective to analyse the communication behaviour within VTS areas when using AIS, and to identify whether the SMCP are suited to satisfy the communication needs given. The corresponding data were collected during a 'round-the-world voyage on board a container vessel.

**VTS/AIS Communication in West and South European Waters**

In West European waters communications of 72 vessels in following VTS areas were analysed: Wandelar Approach (Belgium), German Bight Traffic (Germany), CALDOVREP (English Channel), Jobourg Traffic (France) and Ushant Traffic (France).

In South European water communications of 51 ships in below listed VTS areas were analysed: Finisterre Traffic (Spain), Roca Control (Portugal), GIBREP Vessel Traffic Services (Morocco), Gata Trafico (Spain), Savona VTS (Italy), Genoa Traffic (Italy) and Messina Traffic (Italy).

Basic findings of this part of the project are displayed in following diagrams:

Diagram no. 1
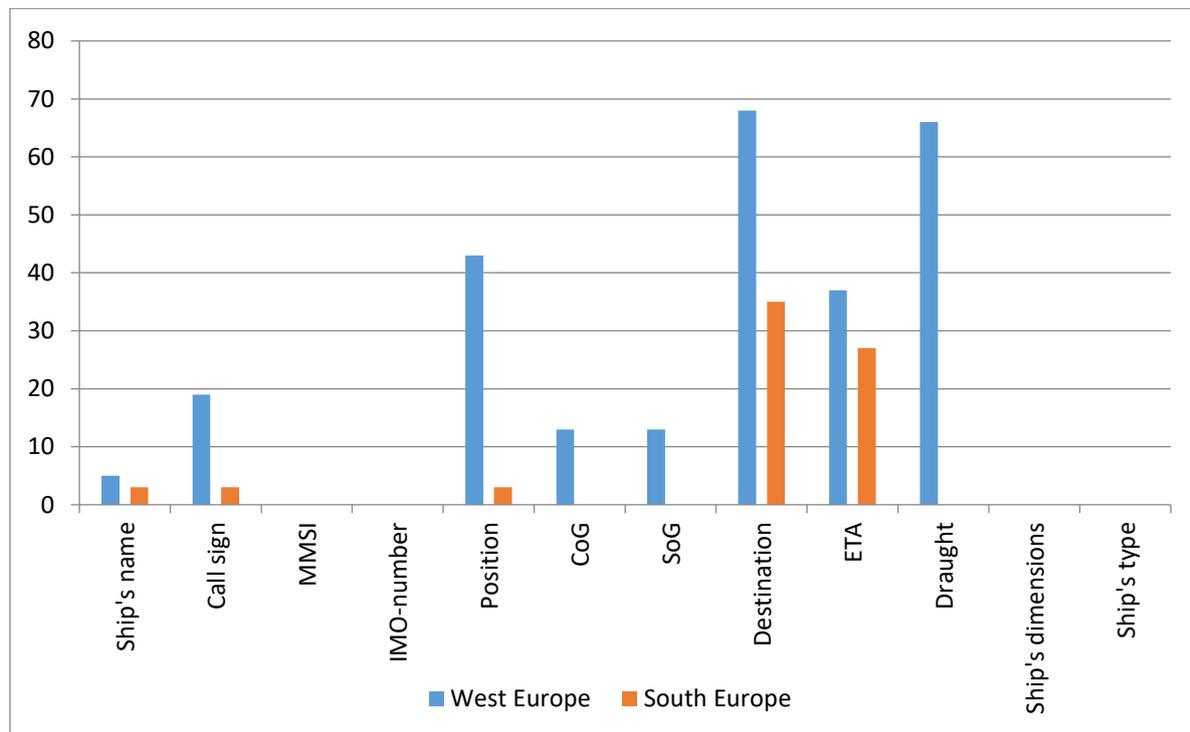


This diagram shows which data were checked by VTS Operators through VHF contacts though they were obtained already via AIS. We learn, that VTS Operators in West European centres do not trust in data given by AIS, but reconfirm the information by verbal call-backs on VHF. Jobourg Traffic, for instance, asked each individual vessel for her course and speed over ground and call-sign even though the latter was already put in the AIS by the corresponding OOW on the ship in question when establishing first contact to the VTS Centre. Worth noting, that in both areas the ETA of only half of the vessels got verified via VHF when their destination was not in the VTS area. When the destination was, however, within the area of the VTS jurisdiction, then the ETA got checked by a VHF call. It happened more than once that the ETA given by AIS and the one obtained by a VHF call were not identical.

The VTS Operators in South Europe relied in general more often on AIS data and checked less frequently via VHF call-backs whether they were correct. Often they even trusted, contrary to their West European colleagues, in voyage specific dynamic data such as the port of destination. Roca Control, e.g., used to finish VHF contacts to passing vessel with "Have a good

passage to (say) Genoa". Their colleagues of Savona and Genoa Traffic finished their contacts with "Please report your ETA to Genoa". This means, that the corresponding VTS Operators relied on the information given by AIS.

During the research period there were eight cases in West and South European VTS areas where verbal contacts got established by VTS Centres via VHF, the Operators using ship's names and call-signs from AIS information. IMO number and MMSI were, however, not mentioned or requested via VHF during the period.

The number of VHF communications from VTS Centres to vessels was much higher in West European waters than in South European ones. This has not only to do with the confidence the latter have in AIS data transmitted from ships, but also, may-be mainly, with the communicative eloquence West European Operators are able to apply in English. This is, among other factors, attributable to the lingo-geographic closeness of their mother tongues to the English language and to a traditionally high-quality training in Maritime English at STCW Operational Level on the background of a well-developed pre-university/college education in English.

Communications of 142 vessels were analysed in the Asian region: VTIS East and VTIS Central (Singapore), Wusong VTS (Shanghai PR China), Dalian VTS (PR China), Tianjin VTS Centre (PR China), Qingdao VTS (PR China), Busan Port Service (Rep. Korea), Ulsan Port Service (Rep. Korea), Ise Wan Traffic Advisory Service (Japan), Nagoya Port Radio (Japan) and Tokyo MARTIS (Japan).

**VTS/AIS Communication in Asian Waters**

Diagram no. 2
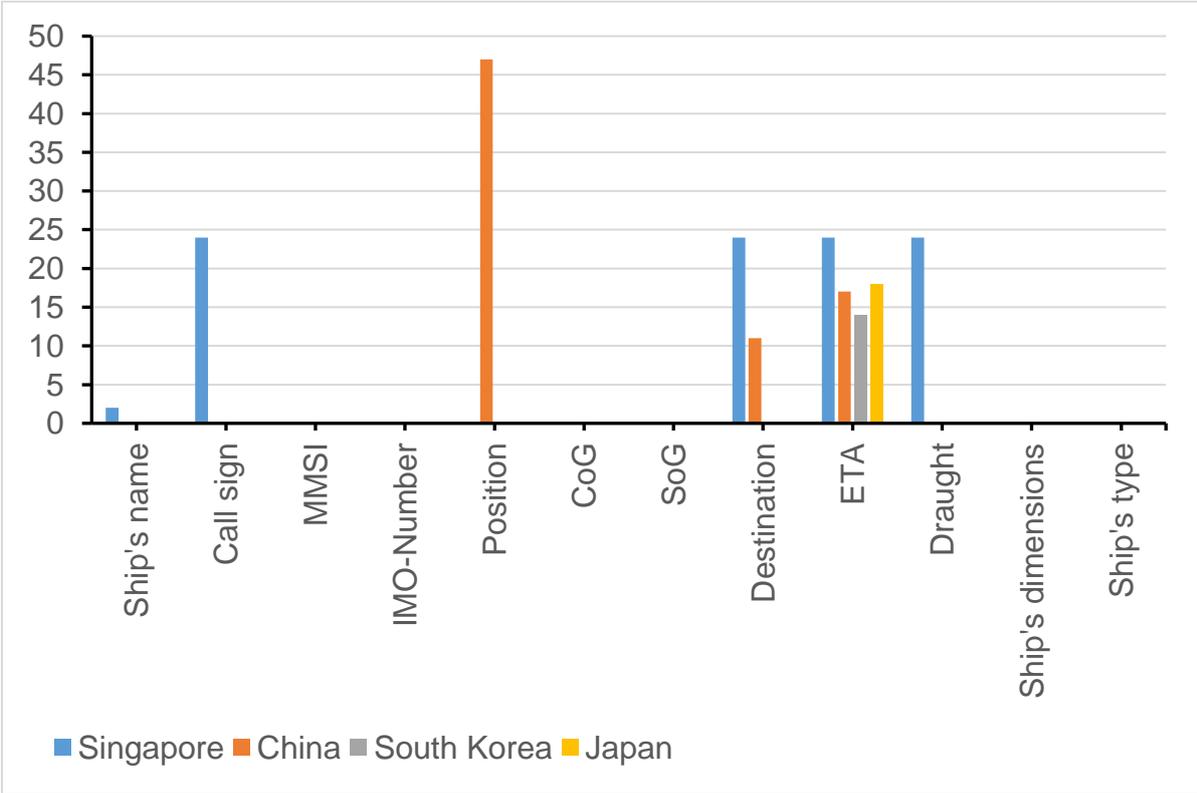
In the same way as in European waters it was examined in how far the VTS Centres relied on the information given via AIS, that means when and why the Operators used to call back in order to verify or reconfirm the AIS data obtained from shipboard. In VTIS East and Central (Singapore) the reporting in through VHF of 24 vessels was observed. When passing the Reporting Line of VTIS East the Operator asked for the call-sign, destination, ETA and draught although these data were available by AIS. Two ships were addressed by the Operator using ships' names and call-signs because they failed to report in – as decreed - when passing the Reporting Line. Having entered the area of VTIS Central, the corresponding Operator only advised to stand-by on VHF Channel 14. Concluding it was observed, that the Singapore VTS Centres used AIS actively to trace and identify vessels in their waters. However, they did not exclusively rely on AIS information, but had the static and dynamic voyage data given reconfirmed over VHF. Worth noting, that the VTS Operators in Singapore used extensively the SMCP, including Message Markers, in communications with passing vessels.

In the VTS area of Shanghai, which consists of six sub-areas, the reporting of 52 vessels was overheard. Relevant basic information is given to the ships in advance by the corresponding agents in written form, so that misunderstandings are minimised. Most of the entering vessels have to drop anchor and to report their anchor position to the VTS Operator on a VHF working channel even though he could spot that position in his AIS. Having heaved up anchor the ETA at the pilot station was asked via VHF in a few cases only. Otherwise the VTS Centres, e.g. Wusong, did not check any further data via VHF and requested only a stand by on VHF Channel 08. That means that verbal communication between VTS and vessels got reduced to a minimum when AIS is operating properly and all data are up-to-date. This is in accordance with the recommendation given in the Admiralty List of Radio Signals which reads: "Vessels equipped with AIS may omit position reports via VHF at the Reporting Lines as long as the data transmitted by AIS is correctly maintained."(Admiralty List 2014). "Correctly maintained" is the crucial point in this recommendation as AIS is a passive aid to navigation. That means the recipient, i.e. the VTS Operator, depends in his/her assessment of a given situation on the data input by the OOW on board ship which needn't necessarily be always correct and updated. That is why Shanghai VTS, for example, transmits following useful advice to the vessels by an AIS message: "Pls  keep your AIS status up-to-date (at anchor, sailing, moored) to avoid local MSA penalty."

The pilot, having boarded the vessel, takes over verbal external communication in his mother tongue thus limiting the Master in exercising his overall responsibility for the vessel if he is not able to understand Chinese - this, however, is a "hot issue" met in ports all over the world and worth an in-depth consideration. The working channels of Shanghai VTS, and especially VHF Channel 16, were permanently jammed and abused by communications of what kind ever in Chinese language.  People talked via VHF without addressing anyone, they even would sing and play music on VHF Channel 16 – all this is extremely irritating for a successful exchange of information and is, by the way, not unique for Shanghai only.

In further Chinese VTS areas the communications of a total of 39 vessels were analysed and it was learnt that the VTS Centres relied to a large degree on the AIS data provided and these data got only infrequently reconfirmed via VHF by the Operators. Dalian VTS, for example, was

only interested in the destinations of passing ships and Caofeidioan VTS wanted to know the ETA only.

Concerning VTS Centres in the PR China, the Rep. Korea and Japan it was noticed that the Operators regarded AIS data from ships generally as correct when they passed the Reporting Lines, and they checked them seldom verbally - the ETA, however, was always asked for. Static voyage data consisting of just a series of digits (MMSI, IMO-Number, ship's dimensions) got never called back for by VTS Centres observed, because an incorrect transmissions of those data is technically unlikely. The reduced VHF communication between VTS Centres and ships in this region may also be attributed to the less developed eloquence of the VTS staffs because they have in principle a more complicated access to the English language than their West European colleagues, for instance.

Worth noting, however, that Japanese VTS Operators strictly complied with the VHF Regulations, e.g. when addressing vessels, finishing communication etc. Messages in English were in their wordings quite close to the SMCP, but got impaired by a strong Japanese accent – the same goes, by the way, also for Chinese Operators.

### VTS/AIS Communication in the Suez Canal and Panama Canal

18 vessels provided data for analysing the communication in the areas of VTS Centres Port Said Control (Egypt) and Rad Abadija (Egypt).

Ships making for the Suez Canal are obliged to report their arrival at VTS Port Said Control before there are allocated a certain anchor position where they have to wait for their individual convoy routing, i.e. the transit through the Suez Canal. Following information was verbally required by the VTS Centre disregarding available AIS data: destination, length o.a. and draught fore and aft. Additional questions were asked regarding the cargo on board: dangerous goods, floatable goods, military goods, containers, heavy lifts etc..

Through the research it was noticed that VTS Port Said Control did particularly not rely on specific AIS voyage data, but required the same verbally over VHF. VTS Abadija, however, did not require any data from any vessel and advised only a stand-by on VHF Channels 12 and 16.

Before passing the Panama Canal all vessels have to establish verbal VHF contact to a VTS Centre. In front of the Canal entrance communication on air is extremely dense as, understandably, Captains want to start transiting as soon as possible and keep constantly asking the VTS Centre for permission to approach the Canal entrance. In our case it was VTS Flamenco Signal Station which accepted the reports and was responsible for further communications with the vessels. The reports of 23 ships were observed and found out that no AIS data at all were verbally checked via VHF that means, VTS Flamenco Signal Station entirely relied on AIS data being correctly maintained and transmitted. The VTS Operators employed AIS actively, among others also for the allocation of anchor positions. Occasionally advice to OOWs like this was given over VHF: "You can drop anchor between these two vessels: Cosco Santos and BBC Volga."

**VTS/AIS Communication in US VTS Areas**

Applying the same method as in the sections before, following US VTS Centres were observed regarding their AIS communication behaviour patterns on air: Houston Traffic, New Orleans Traffic, San Francisco VTS and Delaware Maritime Exchange.

It is mandatory in the VTS areas mentioned, that the National Vessel Movement Center (NVMC) requires a so-called Notification of Arrival (NOA) from any vessel 96 hours prior to her arrival. This can be done by filling in and transmitting an electronic form (eNOAD) providing AIS data such as ship's name, call-sign, MMSI, destination, ETA and type of ship. Thus language problems are reduced when VTS Centres and ships exchange this basic information as the locally coloured dialect of quite a few American VTS Operators is sometimes hard to cope with for non-American ships officers – even British officers face difficulties in this respect.

Before entering one of the ports mentioned above the corresponding Pilot Station has to be called on VHF. The Pilot Station then wants to know the dynamic voyage data, i.e. course and speed over ground. When passing the Reporting Line a pilot boards the vessel and takes over all necessary communications. He checks the vessel in (US VTS Operators prefer to say "check in" instead of "report on") at the relevant VTS Centre mentioning only ship's name and terminal the vessel is bound for. So it is obvious that the Pilot Stations as well as the VTS Centres in US ports employ AIS data actively and check only dynamic voyage data via VHF. San Francisco VTS, however, required each vessel to report present position, course, speed and ETA on VHF to the Pilot Station.

**Summing up the findings** of the sections above it may be concluded that the amount of verbal contacts (VHF) for the exchange of information between ships and VTS Centres is noticeably reduced by the application of AIS, but not eliminated or made superfluous. That is why any OOW would be well advised to get prepared for a coming verbal VHF report to VTS Centres in the countries listed above.

VTS Centres used very actively ships' names and call-signs obtained by AIS for identification and for establishing verbal VHF communication. The confidence in that system, however, differed among the VTS Centres observed. VTS Operators in West European countries and Singapore and those responsible for the organisation of the Suez Canal passage did not exclusively rely on AIS data, but used to reassure about static and dynamic voyage data as well as voyage specific information verbally over VHF.

Regarding South European and East Asian VTS Centres it was observed that the Operators used less to check AIS data obtained from ships and trusted more in that system than, e.g., their West European colleagues. Anyhow, in cases of ambiguities Operators in these areas also tried to clarify them via verbal communication on VHF. VTS Operators are generally advised to do a verbal plausibility check in case of doubtful information given by AIS, note just a few examples from many more:

AIS indicated, that
- the vessel is at anchor at a speed of 12 kts
- the vessel is NUC at a speed of 18 kts
  *(the OOWs failed to update AIS)*

- the vessel's compass shows a deflection of exactly 90°
  *(something was wrong with the quadrantal correctors of the compass)*
- the vessels is sailing into exactly the opposite direction than indicated
  *(it was a tug intentionally manoeuvring backwards).*
In all these cases the VTS Operators had to verbally call back on VHF in order to clear up the errors.
A verbal exchange of information is also required when a vessel carries dangerous goods. In this case the OOW, strangely enough, indicates in the AIS under cargo: "Non Hazardous" or "No Information" whereupon in most cases the VTS Centres use to contact the ship asking for nature and quantity of those goods. It would be helpful for both the parties when data at least about the presence of dangerous goods could be exchanged via AIS.

**AIS Communications and the IMO SMCP**

In this final section AIS communications collected in the project will be compared with the SMCP, i.e. it will be identified in how far the phrases match with communication issues or requirements occurring in the system. For that reason AIS data which had been verbally requested or verified by VTS Operators during the research period will provide the basis.

| Item | SMCP Number | SMCP Phrase |
|---|---|---|
| Ship's name | A1/6.1.1.1 | What is the name of your vessel and call sign? |
| Call sign | A1/6.1.1.1.1 | The name of my vessel is …, call sign … . |
| Position | A1/6.1.1.3 | What is your position? |
| | A1/6.1.1.3.1 | My position is … . |
| Course over Ground | A1/6.1.1.4 | What is your present course and speed? |
| Speed over Ground | A1/6.1.1.4.1 | My present course is … degrees, |
| | | my speed is … knots. |
| Destination | A1/6.1.1.6 | What is your port of destination/destination? |
| | A1/6.1.1.6.1 | My port of destination/destination is … . |
| ETA | A1/6.1.1.8 | What is your ETA in position … ? |
| | A1/6.1.1.8.1 | My ETA is …  hours UTC. |
| Draught | A1/6.1.1.10 | What is your draught forward/aft? |
| | A1/6.1.1.10.1 | My draught forward/aft is … metres. |
| | A1/6.1.1.11 | What is your present maximum draught? |
| | A1/6.1.1.11.1 | My present maximum draught is … . |
| Cargo | A1/6.1.1.16 | What is your cargo? |
| | A1/6.1.1.16.1 | My cargo is … . |
| | A1/6.1.1.17 | Do you carry any dangerous goods? |
| | A1/6.1.1.17.1 | Yes, I carry the following dangerous goods: |
| | | … kilograms/tonnes IMO Class … . |
| | A1/6.1.1.17.2 | No, I do not carry any dangerous goods? |
| VHF Channels | GENERAL 6.2 | Stand by on VHF Channel … . |
| | 6.2.1 | Standing by on VHF Channel … . |
| | 6.3 | Advise (you) change to VHF Channel … . |
| | 6.3.1 | Changing to VHF Channel … . |
| Canal transit | A1/6.2.3.6.2 | Convoy … must wait at … . |
| | A1/6.2.3.6.3 | You will join convoy … at … hours UTC. |
| | A1/6.2.3.6.4 | Transit will begin at … hours UTC. |
| | A1/6.2.3.6.5 | Your place in convoy is number … . |
| | A1/6.2.3.6.6 | Transit/convoy speed is … knots. |

**Summary Assessment**

"A major benefit of AIS is the consequential reduction of VHF voice messages. This in turn reduces the reliance placed on vessels understanding such messages from a VTS Centre and vice versa." (IALA 2001). A reliable communication still depends on a great deal on the communicative competence in Maritime English. It would be lightheaded to relax the efforts in Maritime English training of Navigation Officers for the only reason that technological innovations, here AIS, facilitate the exchange of intelligence between ships and VTS Centres. Quite the contrary, efforts must be continued to enable Navigation Officers to meet the communication requirements laid down in the STCW Convention as revised, the SMCP including VTS communication being part of it– this is still highly topical.

According to the findings of the project there is reason to positively state that the SMCP satisfy more than the basic communication demands resulting from the introduction of AIS. It would, however, be advisable to add at least one item to SMCP Section A1/6, which could read:

*"Update your AIS.*
*   - your destination/speed/course/status … is not correct.*
*I will update my AIS."*

AIS communication is only one part of a more comprehensive VTS communication, which is more demanding nowadays than 15 years ago. So it may be worth considering to generally review the existing SMCP Section on VTS communication in particular as regards the specific needs of the VTS personnel. This idea seems to take shape remembering the IALA Workshop on Common Phraseology and Procedures for VTS Communications on Bali in February 2017 – the relevant activities should be carried out best under the umbrella of IALA itself involving proven experts from the international Maritime English community.

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